

WHAT IS CLAIMED IS:

1. A turbine blade for use in a gas turbine engine, said turbine blade comprising:

an airfoil portion having a tip end;

a shroud attached to said tip end, said shroud having an outer surface;

a knife edge attached to said outer surface of said shroud; and

said knife edge having a pair of cutter blades protruding outwardly from said knife edge.

2. The turbine blade of claim 1, wherein said pair of cutter blades are located in a central region of said knife edge and remote from each end of said knife edge.

3. The turbine blade of claim 1, wherein said cutter blades are staggered with respect to each other.

4. The turbine blade of claim 1, wherein said cutter blades are positioned in a manner to best balance shroud load over the airfoil portion.

5. The turbine blade according to claim 1, wherein said pair of cutter blades include a first cutter blade protruding from a first side of said knife edge and a second cutter blade protruding from a second side of said knife edge opposed to said first side.

6. The turbine blade according to claim 5, wherein said knife edge is integrally formed with said shroud and wherein each of said cutter blades is machined into said integrally formed knife edge.

7. The turbine blade according to claim 5, wherein each of said first and second cutter blades has a cutting edge which is at an angle with respect to said longitudinal axis.

8. The turbine blade according to claim 7, wherein said angle is an obtuse angle.

9. The turbine blade according to claim 1, further comprising a plurality of cooling holes extending through said airfoil portion.

10. A shroud for a turbine blade, said shroud having an outer surface, a knife edge attached to said outer surface, and a

plurality of cutter blades formed into said knife edge at a central location spaced from each end of said knife edge.

11. A shroud according to claim 10, wherein said cutter blades are staggered.

12. A shroud according to claim 11, wherein said cutter blades include a first cutter blade protruding from a first side of said knife edge and a second cutter blade protruding from a second side of said knife edge.

13. A shroud according to claim 12, wherein said first side of said knife edge is opposed to said second side of said knife edge.

14. A shroud according to claim 12, wherein said knife edge has a longitudinal axis and said first cutter blade has a cutting edge at an angle to said longitudinal axis.

15. A shroud according to claim 14, wherein said second cutter blade has a cutting edge at an angle to said longitudinal axis.

16. A method for manufacturing a turbine blade comprising:

forming a turbine blade having an airfoil portion, a shroud attached to a tip end of said airfoil portion, and a knife edge attached to an outer surface of said shroud; and

machining a pair of cutter blades into said knife edge so that said cutter blades are positioned substantially over said airfoil portion.

17. A method according to claim 16, wherein said machining step comprises machining a first cutter blade on a first side of said knife edge and machining a second cutter blade on a second side of said knife edge.

18. A method according to claim 16, wherein said machining step comprises machining said cutter blades so that said cutter blades are staggered along a longitudinal axis of said knife edge.

19. A method according to claim 16, wherein said forming step comprises casting a turbine blade having said airfoil portion and said shroud, and machining said knife edge.